The Builder.

SATURDAY, MAY 13, 1854.

IN justice to the reputation of our professional brethren generally, what we have to say of architecture, in connection with the Exhibition at the Royal Academy, should show what there is not. So far from putting oil into the lamp, or lamps of art—the true purpose of the Academy, as, in other words, we have been told,—the ministration of architecture is every season pouring more cold water on the expiring light. Surely, whatever else is, or ought to be, done elsewhere, the connection of painting and sculpture with the art to which they owe much, and may owe more, in England, should not be interfered with, even by the interruption of one of the slight bonds which the mere walls of the Exhibition-rooms afford. The deduction of general principles of art for special development would, we think, proceed nearer to success, and greater earnestness be observable amongst artists generally, if the proper union of the arts were sufficiently regarded. Moreover, we could point to pictures in oil, of chief importance in the present collection, the merits of which cannot be discussed without taking into consideration questions which have become of great moment in the æsthetics of *architecture;* whilst in the same works are prominent errors, which could not have been committed with the slightest knowledge of architecture and perspective. In the Academy of St. Luke, at Rome, architects and sculptors are, in turn with others, elected to the presidency. Such an appreciation of either of the two branches of art, would seem scarcely possible with the London body.

All this is very saddening, and as regards the body of academicians, is, seriously speaking, very disreputable. Our friends have not succeeded so far, in maintaining an Architectural Exhibition for the profession itself; and, were it otherwise, we should urge the propriety of not throwing away the advantages which a room at the Academy might give, in promulgating a popular taste.

Our readers have seen the architectural drawings hung or rejected on no apparent principle, or those admitted—in one year placed below gaudy oil paintings, in another shouldered up to the ceiling. At length the heading "Architecture" disappeared altogether from the room and the catalogue. We cannot announce that matters are now any better. Oil paintings occupy one side of the room and spaces elsewhere, and architectural drawings, as a necessary consequence, are where it is beyond our power to see them. Of the drawings, as usual, the greater number are designs for no particular place or purpose,—as much *In Nubibus* as No. 1182 (with pretty bits, but an impossible tower), to which Mr. J. W. Goodman has honestly attached the misty title. Of the academician-architects (five we see there are now) not one sends a line. Is this a protest, or is it sheer indifference? We suppose there will be foreigners in England shortly, to see the Exhibition at Sydenham as there were for that of 1851. They will carry away less evidence of the important works in progress, than they would from even our own advertising columns.

The most important drawing exhibited is that by Mr. J. D. Harding (1121), "Crystal Palace, Sydenham, designed by Sir Joseph Paxton," which shows the view of the building from the south-east, with the fountains, and in the foreground the lake and antediluvian animals. The largest fountains are here placed in the large ornamental basins in the lower part of the grounds—that is to say, east of the cascades. The height which they are shown to play must surely exceed even that anticipated, which itself is higher than they are expected to reach by some who ought to know what is possible. The whole, with the landscape, makes a striking composition; though perhaps the several objects will hardly show from one point as here represented, and the railway station appears to be omitted. Sir J. Paxton's name is attached to two drawings (1168 and 1234), showing parts of the gardens, with the fountains. One includes the ornamental structures at the head of the cascades, which, with some perversion of the Queen's English, are called "temples." But since we have been obliged to adopt the advertising name for a building which we take to be neither of crystal, nor a palace, we are getting reconciled to phrases, not drawn like the water of the fountains, from the "purest well," and not "undefiled." Sir J. Paxton also exhibits (1165) "Entrance Court, Mentmore, Bucks, the Seat of Baron M. A. de Rothschild," in which he, or his draughtsman, has adopted the ponderous contortions on the roofs and parapets, of the worst form of the style of the time of James I. Mr. M. D. Wyatt's "View (1162), looking from the Peristyle towards the Atrium and principal entrance of the Pompeian House," &c. at the Crystal Palace, does justice to that clever reproduction in a well-executed drawing. Mr. E. Falkener has three capital "Pompeian Studies" (1173, 1174, and 1175), showing "The Maritime Villa," or House of Diomedes; "The Impluvium," in the House of the Faun; and "The Atrium," in the House of Sallust. With strict attention to what is remaining, or what there is good authority for, great skill is shown in these reproductions of works of ancient domestic architecture. Mr. Falkener would do good service by publishing what from time to time he has shown us. The Compluvium appears to be covered with a *velarium*, or awning, supported by ornamental rods in bronze. Mr. Tite has (1172) "A Composition of the Works of Inigo Jones, Architect, containing his great design for the Palace of Whitehall," and other buildings. It is to be regretted that this drawing cannot be seen as it appears to deserve. Those at the Academy who manage these things, should know that a work even of large size may yet have details requiring close examination. The cool tone of the drawing is, however, unfortunate, and the perspective has the disadvantage seen in an interior view taken from a point on the centre line of the plan. In questions of this sort now, perspective draughtsman might learn from painter. Mr. Tite should have preferred to send particulars of the buildings he has been doing lately; he has, nevertheless, made an important contribution. Professor Donaldson must have the credit of exhibiting—often when others do not. This year he sends (1206) "'An Architect's Dream;' or Sketch of a Design for Opening the Crypt of St. Paul's Cathedral," &c. in which sarcophagi containing the remains of Nelson and Wellington are placed side by side. The opening in the pavement is enclosed by a balustrade in gilt bronze, with candelabra at intervals, and there is a supporting peristyle of Roman-Doric columns. The original idea would be confessedly due to the tomb in the Invalides, by Visconti, were there not other precedents. We have got away from the drawings having reference to the really structural works of the year,—but in truth there is little of the kind. Even in church architecture we have seldom seen so little. Mr. P. C. Hardwick shows us (1134) "New District Church to be erected at Deptford;" it has a spire and pinnacles to the tower, which is nicely treated about the belfry. The Decorated style seems at length to hold exclusive favour. Its characteristics are well expressed, though there is little of real design in churches now being erected. The "Cravenhill Chapel, Hyde-park,—now erecting" (1179), gigantic in the drawing, sinks low in art. There are faults, from which we have been spared of late years, — for example, the ends of the aisles have what appear like imitation flying buttresses, closing the end of the roof, which is in one span. Mr. J. Norton gives us views of churches at Westbury-on-Trim, Gloucestershire (1145), Abertilery, diocese of Llandaff (1149), and others. Mr. E. W. Pugin has a view (1124) styled "St. Mary's and St. Peter's Cathedral Churches,—now erecting." There would seem to be an error in the catalogue. The drawing shows but one somewhat lofty and attenuated building. No. 1192 represents St. George's Church, Doncaster, as now being rebuilt by Mr. G. G. Scott. The new church for Old Brentford, by Mr. R. Brown (1181 and 1210), has a lofty spire, and is further distinguished by a second aisle, or range of chapels beyond the ordinary aisle. No. 1227 is the interior of St. Luke's, Marylebone, by Mr. E. Christian; and No. 1154, is the new Lichgate and Railing at Horsham, Sussex, by Mr. Truefitt. The mediæval style is also adopted by Messrs. Brown and Blacket, in a "Design for a Hydropathic Establishment at Tekley, Wells (1146); by Mr. T. Bury, in the Estbury Almshouses, Lamborne, Berks (1150); and the Clergy Orphan School, at Canterbury (1161), by Mr. P. C. Hardwick. The architect last named, in 1133, "The Abbots—Sumpting, Surrey, now being erected for Capt. Crofts," (picturesque Tudor style, of stone, with red brick buttresses and chimneys, and having a square tower with truncated roof, and corbelled out from the angle of the tower a round turret, with a small spiret capping); and in the "Gardener's Cottage," at Laverstoke House (1180), shows a facile and tasteful pencil. The same architect is also building the Australasian Bank (1164), in Threadneedle-street. Mr. J. T. Christopher exhibits a design for a college in honour of the late Duke of Wellington (1137), with large quadrangle and central portico and domes, the front of the quadrangle being enclosed by low columned ambulatories. To this plan are added other buildings, as wings, joined on by quadrants. The first sight reminds one of Greenwich. Mr. Brodrick has the view of his design for the Leeds Town-hall, which we engraved (1228).

There are not many other important public buildings. 1102 is a "Design for the New Town-hall Buildings, Preston," by N. T. Randall, and 1135 is an "Interior of the Exchange and News-room," as proposed, by Mr. Lamb, for the same buildings (1135), and which, with a simple arrangement of columns and arches dividing the room, and a ceiling glazed in panels, is in good taste. The "Design for the Burslem Town-hall," for which the second premium was awarded to Mr. R. W. Armstrong (1138), has the principal elevation, with an arch, below which columns support sculpture. The same idea is worked upon in the same architect's design (1237), for a public building at Newcastle-upon-Tyne. Messrs. Bidlake and Lovatt show us "The Public Rooms and Corn Exchange, Kidderminster" (1144), in which there are a plain rusticated basement, coupled and clustered pilasters, and other Italian features, of simple but good character. The houses now being built in Ashley-place, Victoria-street (1111), by Mr. H. Ashton, have their best feature in an open staircase, on the principle adopted by Mr. H. Roberts, opening to the street by arcades, on the first and upper stories.

In domestic architecture, the picturesque "nice places to live in," as in our hearing some were called, have a portion of the remaining space. The Italian style, however, has been

retained by Mr. Scoles in the additions to Ince Blundell Hall, Lancashire (1106); also by Mr. J. K. Colling in those to Hooton Hall, Cheshire (1225), which well show what may be done to improve an old house. Messrs. Beensen and Kuckuth, we may here say, have not, we think, succeeded in the decoration of the interior of the Hanoverian ambassador's house; and their "Decoration for a plain Ceiling" (1211) falls into the especial vice of imitating a Gothic rose window. We may mention, them, however, as promising workmen. We ought to have included in some of the above classes, Mr. Edmeston's design for the clock tower for the Market-square, Geelong (1239), in which he carries out the idea of the combination of iron with panels of ornamental porcelain in a way which will, we have no doubt, please friends at the Antipodes. The design deserves credit. Mr. Waring's design for a monument to commemorate the Great Exhibition (1241) has an ornamental iron lantern, suggestive of the principal features of the building in Hyde Park; but the lower part of the composition is more original and suggestive than well-proportioned. Mr. Ferrey has a picturesque design for an educational institution in the north of Ireland—brick—and Romanesque in character (1238).

We see little of what has been doing lately in the erection of cemetery chapels. Messrs. Wehnert and Ashdown show theirs for the Lambeth Ground at Tooting (1209), (recently engraved by us), and Mr. Allom his at Hanwell. We shall, we believe, have enumerated nearly all that there is in the way of new work, if we name additions to Mr. Peto's mansion at Somerleyton Hall, by Mr. Thomas, and the village which is being rebuilt hard by; and it must be confessed that there is every argument this year, in favour of all the energy that architects can show in amending what certainly does not place them in the advantageous position which, from their art, they should command with the public. We may add, that there are in this same room, proofs of a beautiful medal of Flaxman, executed by Mr. H. Weigall for the Art-Union of London, and a cameo portrait of an architect, by Mr. H. Hayler, which we mention for the workmanship rather than the likeness, and because we would aid one who is successfully practising this, amongst us, altogether neglected branch of art.

DR. ARNOTT'S NEW SMOKE-CONSUMING AND ECONOMICAL FIRE-PLACE.

SOCIETY OF ARTS.

ON Wednesday evening last, the following paper by Dr. Arnott, on a new Smoke-Consuming Fire-place, was read at the Society of Arts:—

The great evils connected with the common coal fires are:—

1. Production of Smoke.
2. Waste of Fuel.
3. Defect of Warming and Ventilation.

1. *Smoke in the Interior of Houses and in the External Atmosphere.*—Examination of the question has ascertained that in London alone, on account of its smoke-loaded atmosphere, the cost of washing the clothes of the inhabitants is greater by a million and a half sterling a year (that is, fifteen times one hundred thousand pounds), than for the same number of families residing in the country; and this seems to be but a small part of the expense when we consider the rapid destruction of all furniture in houses, as of carpets and curtains, of articles of female apparel, of books and paintings, of all internal decorations, and even of the external surface of the stones of which edifices are built. Then personal cleanliness is but imperfectly maintained there by very frequent washing of the hands and face. Flowering shrubs and many trees cannot live in the London atmosphere, so that the charm of a garden, even at considerable distances, has almost ceased with the extension of the buildings and increase of smoke. A growing flower, exposed to the atmosphere, being soon covered with blacks or sooty dust, defiles the hand which plucks or touches it. Sheep from the country, placed for a few days to graze in any of the parks, have soon a dingy fleece, strikingly apparent when others newly arrived are mixed with them. And the atmosphere, so damaging to inanimate things and to vegetable life, is also inimical to the health of man, as proved by numerous facts recorded in the bills of mortality. Many persons, with certain kinds of chest weakness, cannot live here. Many children brought from the country are found soon not to be thriving. The coal-smoke, then, may be called the great nuisance and opprobrium of the English capital.

2. *Waste of Fuel.*—To save a third of the part of the coal burned in London alone, would save more than a million sterling a year; and when coal is very dear, as during last winter, the saving would be much greater. Count Rumford, a writer of great authority in such matters, after making many elaborated experiments, declared that five-sixths of the whole heat produced in an ordinary English fire goes up the chimney with the smoke, to waste. This estimate is borne out by the facts observed in countries where fuel is scarce and dear, as in parts of continental Europe, where it is burned in close stoves, that prevent the waste, and with these a fourth part of what would be consumed in an open fire suffices to maintain the desired temperature. I have myself made experiments here with the like results.

Now it is to be considered that coal is a part of our national wealth, of which, whatever is once used can never, like corn or any other produce of industry, be renewed or replaced. Then the coal mines of Britain may truly be regarded as among the most precious possessions of the favoured race which occupies the Islands, and without which they could never have attained the importance in the world which the extraordinary development of their mental and bodily faculties has now given them. It is enough to say that without coal they would not have had the steam-engine. To consume coal wastefully or unnecessarily, should not be called merely improvidence, but a serious crime committed against future generations.

3. *Defects of Heating and Ventilating in Dwellings.*—Calling a thousand a week the average rate of mortality in London alone, it was found for some weeks of the very cold winds in the middle of last winter, that nearly 700 deaths more occurred owing to the intense cold which then prevailed, and against which the existing arrangements for warming and ventilating were insufficient. Not a little of the premature mortality at all times, and of the spread of epidemics, and of the low condition of health among the people, is doubtless owing to the same cause.

We shall now inquire whether it be not possible in a great measure to avoid the three great evils above described, and at the same time to secure still other advantages.

1. To avoid or to consume smoke—in other words, to produce a smokeless coal fire.

Common coal is known to consist of carbon and bitumen or pitch, of which last the elements again are still chiefly carbon and hydrogen, a substance which, when separate, exists as an air or gas.

When the coal is heated to about 600° Fahrenheit, the bitumen or pitch evaporates as a thick, visible smoke, which, when it cools again, assumes the form of a black dust or flakes, called blacks, or smut, or soot. If that pitch, however, be heated still more, as it is in the red hot iron retorts of a gas-work, or in rising through a certain thickness of ignited coal in an ordinary fire, it is partly resolved into invisible carburetted hydrogen gas, such as we burn in street lamps.

Now, when fresh coal is thrown upon the top of a common fire, part of it is soon heated to 600°, and the bitumen of that evaporates as the visible smoke, which immediately rises. Of such matter the great cloud over London consists. If the pitchy vapour, however, be heated to ignition by the contact of a flame or of ignited coal, it suddenly becomes in great part gas, and burns itself as flame. This is the phenomenon seen in the flickering and burning which takes place on the top of a common fire.

But if fresh coal, instead of being placed on the top of a fire, where it unavoidably must emit visible pitchy vapour or smoke, be introduced beneath the burning, red-hot coal, so that its pitch, in rising as vapour, must pass among the parts of the burning mass, it will be partly resolved into the inflammable coal gas, and will itself burn and inflame whatever else it touches. Persons often amuse themselves by pushing a piece of fresh coal into the centre of the fire in this way, and then observing the blaze of the newly-formed gas. Various attempts have been made to feed fires always in this way, and so to get rid altogether of smoke. The most important of these was about thirty years ago, by an ingenious manufacturer, Mr. Cutler, who, not aware that others had been engaged in the same pursuit, took a patent for his apparatus. A trial at law, however, afterwards decided that he had no patent right. Mr. Cutler placed a box filled with coal immediately under the fire, with its open mouth occupying the place of the removed bottom bars of the grate, and in the box was a moveable bottom, supporting the coal, and by pressing which the coal was lifted gradually into the grate to be consumed. The apparatus for lifting, however, was complicated, and liable to be out of order, which, with other reasons, has caused the stove to be little used. The moveable bottom rested on a cross-bar, which was guided by slits in the side of the coal-box, and which was lifted by chains at each end, drawn up by a windlass, and this windlass was turned by bevel wheels, of which one had to be moved by a winch in the hands of an attendant.

In the new fire-grate now to be described I have sought the greatest possible simplicity of parts joined with complete efficiency. It is represented in the accompanying drawing. The charge of coal for the whole day is placed in a box immediately beneath the grate, as shown in the diagram at the letters *e f g h*, and is borne upwards as wanted by a piston in the box, raised simply by the poker used as a lever, and as readily as the wick of an Argand lamp is raised; and the fire is under command, as to its intensity, almost as completely as the flames of a lamp.

This fire is lighted with singular ease and speed. The wood is laid on the upper surface of the fresh coal filling the coal-box, and a thickness of 3 or 4 inches of cinder or coked coal left from the fire of the preceding day is placed over it. The wood being then lighted, instantly ignites the cinder above, and at the same time the pitchy vapour from the fresh coal below rises through the wood-flame and cinders, and becomes heated sufficiently to inflame itself, and so to augment the blaze. When the cinder is once fairly ignited, all the bitumen rising through it afterwards becomes gas, and the fire remains quite smokeless for the remainder of the day. A fire-place supplied with coal from below was used by a distinguished engineer in town for ten years, and the chimney had not to be swept the whole of that time, because there was no soot formed.

In the new grate, because no air is allowed to enter at the bottom of the coal-box, there is no combustion below, but only between the bars of the grate, where the fuel is completely exposed to air, and near the mouth or top of the coal-box. The unsatisfactory result of some other attempts to make such a fire have been owing, in part, to the combustion extending downwards in the coal-box, because of air admitted below, and the consequent melting and coking of the mass of coal so as to make it swell and stick, and impede the rising of the piston.

A remarkable and most valuable quality of this fire is, its little tendency to go out or be extinguished. Even after nearly all the coal in the grate, or surrounded by the fire-bars, has been consumed, the air will dive into the coal-box, and keep the fire there gently alight, like a torch burning from the top downwards, until nearly the whole contents of the box are consumed, and thus the fire will remain burning for a whole day or night, without stirring or atten-

dance, and yet at any moment it is ready to burn up actively when the piston is raised.

2. *Waste of Fuel.*—We now come to consider how the *waste of fuel* which occurs in common open fires is to be prevented.

Count Rumford, as the result of his own experiments already referred to, declared that 5-6ths of all the heat produced in a common open fire passed up the chimney with the smoke, and therefore to waste; and he appealed in corroboration to the experience of the continent of Europe, where close stoves are used, which do not thus waste heat up the chimney, and where a much smaller allowance of fuel than is here needed in open fires suffices. In my house I have a striking illustration of the matter in a peculiar enclosed fire, by which for fourteen years I have been able to maintain in a large dining-room a temperature of 60° or more, accompanied with good ventilation, by an expenditure of only 12lbs. of coal for twenty-four hours, or about a fourth of what would be used in an open fire there for fifteen or sixteen hours. The aperture by which the fresh air enters the stove to maintain the combustion sufficient to warm that room, is much less than an inch in diameter. If I compare that with the aperture of a common chimney-pot, which has a diameter of 10 inches, and area or size 150 times greater than my stove; and when I think of the rapidity with which a column of dense smoke filling that pot escapes from it when the fire is burning briskly; and I reflect further that that column consists entirely of the warmest air from the room, blackened by a little pitchy vapour from the fire, there is indication of prodigious waste, and room for reasonably hoping that a saving is possible. The exact nature of the waste in such cases is thus explained:—A single mouthful of tobacco smoke, emitted immediately, diffuses itself so as to form a cloud arger than the smoker's head, and soon would contaminate the whole air of a room, as do also the smoke and smell of wood, paper, or other combustible burned in a room. Now, the true smoke of a common fire is not at first the whole of what is seen issuing from the chimney top, but little driblets or jets which shoot up or issue from the cracks in the upper surface of coal which forms the fire. These jets, however, quickly diffuse themselves, like the tobacco smoke, in the air around them, that is to say, in the large volume which fills the space left over a common fire, and over the hobs, where there are such, at the side of the grate. The whole of the air so contaminated, and which may be in volume 30, 50, or 100 times greater than that of the true smoke, is then all called smoke, and must all be allowed to ascend away from the room. Now, if a cover or hood be placed over the fire, such as represented by the letters *y a b* in the diagram, so as to prevent the diffusion of the true smoke or the entrance of pure air from around to mix with it, except just what is necessary to burn the inflammable gases which rise with the true smoke (whether visible or not), there would be a great economy. This has been done in the new fire-place, with a saving of from one-third to one-half of the fuel required to maintain a desired temperature. In a room the three dimensions of which are 15, 13½, and 12 feet, with two large windows, the coal burned to maintain a temperature of 55° in the coldest winter days, has been 18 lbs. per 19 hours, or less than a pound per hour.

And it is to be remarked, that not nearly the whole possible saving has been effected in the case referred to; for the grate was but imperfectly altered, and the true smoke, little diluted, is very hot air as it leaves the ignited coal; and if it were made to pass, coming in contact with a vessel containing water or colder air, it would give up for use a considerable part of its heat. In many cases such saving will be profitably effected. Under the present imperfect forms of open fire the whole of the hot smoke passes away as certainly as here, but is then so much diluted with the colder air of the room, that ordinary observers do not perceive, and, consequently, do not regret, the fact.

In many cases the contraction of the space over the fire will be more conveniently made in brickwork than by a metallic hood. Where the hood is used, unless it be made a boiler or water-vessel, it should be lined with tile, to prevent the overheating, which would cause in the room some smell of overheated metal.

The stalk of the hood at *y* must pass closely through a plate, stopping the bottom of the chimney so that no air shall enter the chimney but through the hood; and there is a throttle-valve or damper in the hood-stalk, at *t*, giving perfect control over the current of air that passes through. There is no part of the apparatus more important than this valve or damper, and its handle or index must be very conspicuous, and have degrees of opening marked as clearly as the points on a compass-card. When the valve is quite open, the chimney acts like that of a blast furnace, or like a forge-bellows, to quicken the combustion, but, by partially closing the valve, the current may be diminished, until only the most tranquil action remains. The valve should not be open in general more than just enough to let all the burned air or thin smoke, which is scarcely visible, pass through. When the valve is once adjusted to the usual strength of chimney action, it requires little change afterwards.

In many cases it is desirable to be able to command and modify, by a moveable plate, the size of the front opening of the hood or fire-place, as well as the opening of the chimney throat. By the proper adjustment of the two, the desirable brightness of the front of the fire may be maintained.

The chimney-flue above the upper opening of the hood should have its sides made slanting, so as not to harbour dust or any soot, which, from any careless use of the fire, might be produced.

3. *Defects of Heating and Ventilating.*—The third and last of the great evils of the present open fires is, that there are great irregularities in their heating and ventilating, which bear so powerfully on the public health. The hood and its damper are, perhaps, of more importance in this respect than as saving the fuel.

The hood and its damper, by allowing so small a quantity of air to pass through in comparison with what rises in an open ordinary chimney, lessens in the same degree the cold draught of air towards the fire from doors and windows, and which are common causes to the inmates of winter inflammation and other diseases; and for the same reason the heat, once radiated from the fire towards the walls of the room, not being again quickly absorbed and carried away by the currents of cold air referred to, remains in the room, and soon renders the temperature of the whole more equable and safe.

Still more completely to prevent cold draughts approaching from behind persons sitting around the fire, the fresh air for the room is conveniently admitted, chiefly by a channel which leads directly from the external air under the floor to the hearth, and there allows the air to spread from under the fender. The fender, exposed to the fire near it, becomes hot; the cold, fresh air then rising under it takes the excess of its heat, and so becomes itself tempered before it spreads in the room. Two evils, those of excess of heat and excess of cold, meet to neutralise each other, and to produce a good result.

The importance of ventilation, again, is strikingly exhibited by such occurrences as the following, which was related at the meeting of scientific friends at which I first described the new fire-place, by Mr. Robert Chambers, of Edinburgh, as having happened not long ago in Glasgow. A large old building, which had been formerly a cotton-mill, was fitted up as a barrack dwelling-house for persons of the working classes, and had nearly 500 inmates. Like all foul and crowded human dwellings, fevers and kindred diseases soon became prevalent there. At last a medical man who was interested obtained permission from the proprietors of neighbouring chemical works, in which there was a lofty and very powerful chimney, to make an opening of 1 foot in diameter into the side of the chimney for ventilation of the lodging-house. He then connected with this a main tube from the lodging-house, which had branches running along all the passages or galleries, and from the ceiling of every separate room a small tube communicated with these branches. Soon after, to the surprise as well as to the delight of all concerned, fatal diseases entirely disappeared from the house, and have never returned.

Now the chimney of the new fireplace, although not very tall, has a ventilating power scarcely inferior to that of the Glasgow chemical works. The arrangement of the hood with its valve, as above described, by allowing only unmixed and very hot smoke to enter the chimney, instead of, as in common chimneys, smoke diluted with many times its volume of colder air, increases the draught just as it does the heat of the chimney, and through an opening then made into the chimney from near the top of a room, all the hot, foul air in the room, consisting, perhaps, of the breath of inmates, smell of dinners, burnt air from candles, lamps, &c. and which else accumulates and stagnates at first near the top of the room, is immediately forced into the chimney and away. This is strikingly proved by placing near the ventilating opening a light body, as feathers or sheets of paper suspended to a thread, and seeing with what force that is drawn into the opening. In the diagram or drawing the opening is represented at the letter (*v*), having the common-balanced chimney-valve in it, which, by the wire descending to a screw within reach of the hand, can be left open to any desired degree.

Besides the remedy of the three great evils now treated of, there are many subordinate advantages of the new arrangement of a fire-place, among which the following may be noted:—

1. Chimney-sweeping can scarcely be wanted, for there is no soot.

2. Chimney-flues without soot cannot catch fire, and, if fire were in any way there produced, by shutting the hood-valve it would be certainly extinguished. Thus a large proportion of the conflagrations of buildings and of towns may be avoided.

3. The huge evil (almost universal) of smoky chimneys may cease.

4. The occasional sudden rush of air towards a hot wide chimney when the door is opened, and which carries readily the light muslin dress of a lady towards the grate and inflames it, cannot happen with this grate.

6. The danger of sparks from exploding pieces of coal thrown on the carpet does not exist here, for all the coal is first heated and coked while deep in the coal-box, and covered over. Thus a fire-guard is little wanted.

7. The strong draught of a voracious fire in one room, or in the kitchen of a house, cannot disturb and overcome the action of other chimneys in the house, as is now very common.

8. The strong draught of any well-constructed fire-place may, by a connecting tube, be made to ventilate any distant rooms, staircases, cellars, closets, &c.

9. The strong and copious draught caused by momentarily opening the hood valve or damper will prevent the diffusion of dust when the fire is stirred or disturbed.

10. The chimney-valve, by its powerful ventilating effect, obviates all objections to the use of gas-lights in houses, thus leaving their beauty, cleanliness, cheapness, and many conveniences unmarred. Explosion from accidental escape of gas in a room or house, of which occurrence there have been a few destructive instances, cannot happen where there is the ventilating chimney valve, for cold coal-gas entering a chimney-flue produces a more powerful draught than hot air does.

10. The improved chimney draught in attic or upper rooms will make these more valuable, and will increase the comfort of low houses and cottages.

11. It would, moreover, make it expedient to carry the flue of a close stove, or bath, or the ventilating tube from lamps in staircases with any acting chimney.

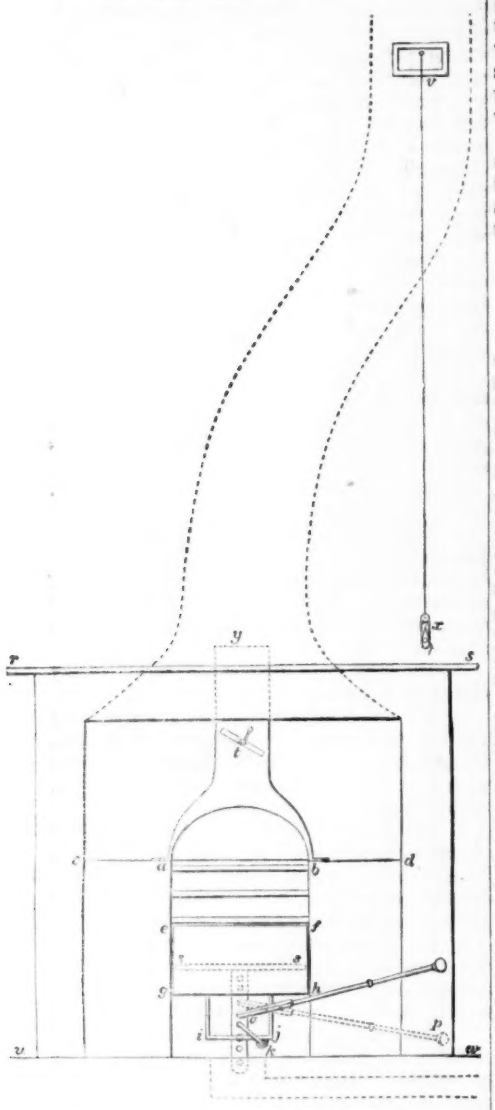
12. This torch fire (it has been so called because it burns from above downwards, like a torch or candle) is remarkably adapted also for the purposes of the kitchen.

13. The change of any existing grate of an old fashion into this is easy and little expensive.

14. Any kind of coal or coke may be used in this grate, even the small culm or coal-dust, which is very cheap.

I might extend this list, but I need not. I may notice here the remarkable fact, that of the only four things which Providence has left to man in various parts of the earth to procure for

himself, namely, fit air, temperature, aliment, and work alternating with rest,—the skilful management of his domestic fire goes far to secure the two first-named; but these are the last which men come to understand well, because things invisible and intangible, and, therefore, to be perceived only by the eye of the mind after much cultivation.



Explanation of the Diagram.—It represents a common fire-place with mantel, *r*, *s*, or chimney-piece, two jambs, and a common grate with two bars and bottom, to which four parts, the essentials of the new fireplace, are added. The original or old parts are shown by clothed lines, the new parts by solid or full lines, *e f g h* is a box or receptacle of iron to contain the charge of coal for the day, with its open mouth placed where the bottom bars of the grate had been. It may stand on feet on the hearth, or may be fixed to the grate. Besides its fixed bottom, *g h*, it has also a moveable bottom, *s s*, like a piston, on which the coal immediately rests, and is lifted as wanted, and let down as the piston moves; the piston-rod, *m k*, passes through the fixed bottom, and is steadied by a guide-hole in the stirrup or bar, *i*, *j*, below. The piston-rod has notches or openings in it to receive the points of the poker, *p o*, which acting as a lever, having its fulcrum in the foot of the box or otherwise, lifts the piston. A catch or pull, *z*, falls into the notches as the piston rises to prevent its return until desired.

In the centre of the bottom front is a door, which is opened at will to admit a little air if wanted, or for removing small coal or ashes which falls past the piston. Where the grate is set low a small opening is made in the hearth to allow the end of the piston to descend.

a b y is a hood or cover for the fire, like an inverted funnel opened in front, placed over the fire to contract the open space there, and to receive the true smoke of the fire and convey it little diluted into the chimney-flue at *g*.

t t is a valve or damper, placed in the narrow part of the stalk of the hood to give complete control of the current of air passing through. There is an index externally, showing clearly always the position of the valve.

g v marks the direction of the chimney-flue in the wall, having generally to bend to one side to avoid the fireplace of the room immediately above.

v is the ventilating chimney-valve, admitting air from near the top of the room to the flue, balanced nearly on its centre of gravity so that the least pressure from without opens it inwards, but any pressure from without, as of smoke, closes it. There is a wire from the valve, with a screw or loop-peg, for partially or wholly closing it.

l n indicates a channel by which fresh air, directly from the atmosphere, enters the room, to be warmed under the fender or near the fire, and then to spread in the room. It has a controlling-valve.

WHO DESIGNED THE WATER-GATE, YORK-STAIRS?

IN a recent number of the *Builder* (No. 586), one of your correspondents, "A. W. H." called attention to the present neglected state of the "beautiful water-gate," at the end of Buckingham-street, Strand, the design of which he, in common with many others, ascribes to our celebrated architect, Inigo Jones, probably from the circumstance of its having been so ascribed by Walpole Dallaway, Colin Campbell, and others. Indeed, in the original edition of the "Vitruvius Britannicus" (published without date, but about 1717), an engraving of the building is given at vol. II. plate 28, with the following inscription:—"This gate was erected by the 1st Duke of Buckingham, when Lord High Admiral of England, ann. 1626, by Inigo Jones."

It is, moreover, noticed in Ralph's "Critical Review of the Publick Buildings, &c. in and about London and Westminster," first published in 1734, "as unquestionably the most perfect piece of building that does honour to the name of Inigo Jones." But I find in a manuscript (a thin folio, formerly in the possession of G. Vertue, now in the library of Sir John Soane's Museum), entitled "Account Book of Workes done by Nicholas Stone, Sen. Master Mason to King James I. and King Charles," the following memorandum in the handwriting of C. Stoakes:—"Some of y^e^ most eminentt workes that my vncle, Mr. Nickolas Stone, Sen. did in England, in Holland, and Scotland."

The ninth article in the list is as follows:—"The Water-Gate att Yorke House, hee *desined and built*, and y^e^ right hand Lion hee did fronting y^e^ Thames. Mr. Kearne, a Jarman, his brother, by mar-ing his sister, did y^e^ Shee Lion."

This seems so clearly and circumstantially to fix the *design*, as well as the execution of the present building on Stone, that it would be interesting to ascertain on what authority it originally came to be ascribed to Jones, and the more so as no engraving of the work appears in "The Designs of Inigo Jones," collected and published by W. Kent, 1727, although Jones's design for "Temple-bar in the Manner of a triumphal Arch" (not executed) does; and if the Water-gate at York House, included in Stoakes' list, be that now in existence, and deserving of the high commendation it has so generally received, when understood to have been the production of the "immortal Inigo," it is but right and proper, though late, to do justice to the merit of the master mason, Stone; should there be no overwhelming evidence to prove that his nephew was mistaken in his statement referred to, and which from the opportunities he possessed of being accurately acquainted with his uncle's affairs, evinced by other details given in the manuscript, is, to say the least, improbable.

Perhaps some of your readers may be in possession of information on the subject, which would be conclusive, and feel sufficient interest in the subject to communicate such as they may have.

G. B.

THE LOSS ON BIRMINGHAM TOWN-HALL.—We understand that an honorary committee is about to be formed to aid the architects of Birmingham Town-hall in the recovery of the money lost by the sureties in the erection of the edifice.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual general meeting of the Institute was held on the 1st of May, when a report from the council on the state of the property and affairs of the Institute, with an account of the funds, was read.

The following is a list of the officers elected for the ensuing year:—

President: Earl de Grey. Vice-Presidents: Messrs. T. H. Wyatt, B. Ferrey, and F. C. Penrose. Honorary Secretaries: Messrs. J. J. Scoles and C. C. Nelson. Ditto for Foreign Correspondence: Mr. T. L. Donaldson. Members of Council: Messrs. H. Ashton, J. Bell, M.P.; J. H. Good, jun.; R. C. Hussey, G. Mair, E. Christian, H. Clutton, J. H. Hakewill, G. O. Leicester, and P. C. Hardwick. Auditors: Messrs. T. H. Lewis, fellow; and W. A. Buckley, associate.

The Institute now consists of 131 fellows, 117 associates, 19 honorary fellows, 16 honorary members, and 79 honorary and corresponding members.

AN ESCAPE.

WE are asked to say that a report which has arisen that Mr. Arthur Ashpitel, the architect, known to many of our readers, was lost in the ill-fated *Ercolano*, is untrue.

We are very glad to hear it, and mention the circumstance most willingly. All arrangements, it appears, had been made by Mr. Ashpitel for the passage, but a return of illness forced him to remain at Naples, and thus, what seemed a misfortune, saved his life. Thus it is more often than we think, or ever discover, seeing, as we do, only a small part of the whole at a time. The "bit of luck" often leads to ruin; and what appears to be a sad misfortune, is the saving of us. The recollection of this would be useful to most of us.

THE WELLINGTON CLOCK TOWER, LONDON-BRIDGE.

WORKMEN are engaged in digging the foundation for the Wellington Clock Tower, at the entrance of the London and Brighton Railway. The tower, the morning papers say, "will be 70 feet in height, and 40 feet at the base, with four illuminated clocks." It is much to be hoped that the original design noticed by us some time ago (a stone structure in cast-iron, so to speak), is not to be carried out. Should it be, it will become a lasting annoyance to all who have been concerned in its erection.

"BUILDINGS ACT AMENDMENT BILL."

MR. DONALD GRANT'S Bill for sanctioning his Patent Ventilating Apparatus (schedule F of the Buildings Act, notwithstanding), is going, as it did last year, through the House of Lords as a *Public* Bill for amending the Buildings Act, without discussion. May I, through your columns, again ask Mr. Grant to explain his system, which I can find no one who has heard of, and say why this should be a public measure.

A DISTRICT SURVEYOR.

PROVINCIAL NEWS.

Swinderby.—The ancient church in the village of Swinderby, about 8 miles from Lincoln, is about to undergo extensive alterations and enlargement. The present north aisle is to be taken down, and extended about thirty feet in length, with a new roof. The nave is also to have a new roof, and the whole of the church is to be repewed with open benches. The alterations will cost about 520*l*. Mr. William Huddlestone, builder, of Lincoln, has undertaken the contract for the whole of the work.

Moulsham.—The *Chelmsford Chronicle* states that the committee for carrying out the enlargement of St. John's Church, Moulsham, have had to make another appeal to the public for a balance of 200*l*. By the enlargement, which has been effected by the projection of transepts and a chancel with chancel aisles, free seats have been obtained for nearly 500 additional worshippers. Recently the general appearance of the church has been improved by decorations, one of them by the lady of the rector of the

parish. The cost of the enlargement of the church has been altogether 1,882*l.* 13s. 11d.

Faringdon.—The alterations and improvements now going on and contemplated in the parish church here are now much greater than was at first thought necessary. The heavy and unsightly galleries are completely removed, and the pillars will be restored to their original state. The south porch is now being pulled down, and will be replaced by another entrance, with an organ-loft over, and a gallery for the singers. The pipes for heating are nearly completed, and other branches of work are now going on.

Newhaven.—A wing is to be erected on the south side of the parish church, according to the *Sussex Express*, and the interior is also to undergo extensive alterations. The present windows are to be removed, and others in the Early English style, of Bath stone, are to be substituted. A new floor is to be laid down, and the present pews are to give place to open seats. These alterations and improvements were practically commenced on Thursday in last week, when the foundation-stone of the new wing was laid. The roof of the new wing is to be open with wrought and stained timber. The work is to be carried out on the designs of Messrs. Habershon, by Mr. B. Constable, of Tunbridge, who is engaged in constructing the new church at Hove. The cost of the additions and improvements is calculated at about 1,000*l.* raised by voluntary contributions. The whole work will be completed in five or six months.

Norwich.—A new Baptist chapel has been commenced here. Mr. Gorrett, the minister of the congregation for whom it is intended, has subscribed 1,500*l.* towards the cost of its erection.——A meeting of the Suffolk Archæological Institution was held at Eye on 27th ult. and was numerously attended: president, the Hon. and Rev. Lord Arthur Hervey. The members first met at the Rev. H. Creed's, rector of Mellis. The first visit was to Yaxley Church, when Mr. Creed read an account of the edifice. At the castle, the Rev. Mr. Creed also read an account of that building, and of the church, which was visited. About twenty afterwards dined at the White Lion Hotel, Lord A. Hervey in the chair. At the Assembly-room were exhibited some antiquities.——National school-rooms have just been completed at Thorpe Hamlet, Norwich, at a cost of 660*l.* The architect was Mr. J. Brown, of Norwich.

Southampton.—A ragged school has been opened in this town. The building cost about 1,200*l.* nearly the whole of which has been subscribed.

Tenbury.—The neighbourhood of Old Wood being a populous district, and distant from any place of worship, it has been determined upon building a new church on the outskirts of the parishes of Tenbury, Middleton-on-the-Hill, Leysters, and Bockleton. The late Miss H. Rushout left 600*l.* towards the building. Another Miss Rushout is a subscriber, it is said, to a large amount, and the land has been purchased and presented by the Rev. Sir F. A. G. Ousley. On Wednesday last, the foundation stone was laid. The site adjoins the public road leading from Tenbury to Leominster. The architect is Mr. Woodger, of Guildford. The ceremony was performed by Miss Rushout.

Chirbury.—About a fortnight since, the Countess of Powis laid the foundation stone of a new church at Marton, in the parish of Chirbury. The site is the gift of Mr. E. Humphreys, of Walcott. The church will consist of nave and chancel, with vestry, and timber porch, and a turret and spire at the west end of nave, and is intended to accommodate 125, including children. The walls will be built of Wotherton stone, with dressings of Grinshill free stone. The architect is Mr. E. Haycock, jun., and the contractor Mr. Henry Thomas. The cost of the church will be 650*l.*

Stapleton.—The Bishop of Gloucester and Bristol has offered to rebuild the parish church, &c., at his own cost, principally for the sake of providing free sittings for the poor.

Cheltenham.—Lord Northwick is about to erect another picture gallery at the south-west end of Thirlestane House. It is to be 40 feet in length, by 24 feet in width, and will be devoted exclusively to paintings by modern masters.

Bristol.—The foundation stone of the new church in the parish of St. Paul will be laid by the mayor on the 24th inst.

Taunton.—The churchwardens and others of Taunton have *nearly* determined to take down the old tower of St. Mary Magdalen, and rebuild it in accordance with the reports of Mr. Giles and Mr. Ferrey. The cost will probably, it is thought, be under 7,000*l.*

Brecon.—It has been agreed upon to build a new church in the parish of St. David's, Brecon, instead of the old one, which fell down some time ago. The site fixed on is in a field belonging to Archdeacon Davies, opposite the present churchyard, and granted for the purpose. Col. Pearce, of Ffrwdgrech, gives all the stone required for the building from a quarry on his estate, and about 150*l.* towards the erection.

East Wells.—Mrs. Jenkyns, widow of the late dean, has signified her intention of building a chapel of ease at East Wells.

Retford.—The erection of chapels for the new cemetery, which are to be distinct buildings connected by a porch, are to be commenced immediately. The plans have been fixed upon, and are those of Mr. Arthur Wilson, a pupil of Mr. Place, of Nottingham, under whom he is at present engaged as clerk of the works now going on at the parish church.

Chatburn.—During a violent thunder storm which passed over Chatburn, near Clitheroe, on Wednesday before last, the electric fluid struck the spire of Christ Church, about midway, and scattered the large stones, of which it was composed, one being thrown a distance of 100 yards, and a great quantity into a field below the spire, and in the churchyard. It is thought that 13 tons of stone in all were thrown down. The clock was struck and much damaged, and the fluid next entered a window in a south-easterly direction, passed between the ceiling and the slates, and finally made its exit at the northern end of the church, forcing a passage through a large stone in the wall, which it divided, although the parts remain in their place. The greater portion of the spire is in imminent danger of falling, and the whole, it is said, must be taken down to a level with the church, if, indeed, it does not fall in the meantime.

Doncaster.—A new church is to be erected in the township of Cadeby, from a design by Mr. Scott, and at the instance of Sir Joseph Copeley. The style is Decorated, and not Early English, as has been stated. It is similar in form to the church at Skelton, near York. According to the ground already marked out, the length will be 64 feet outside the walls, not including the buttresses, and 38 feet wide. The porch is 15 feet 3 inches wide, and projecting 10 feet. It will have a north and south aisle, and a chancel and vestry. It will accommodate about 150 persons. The roof is high pitched, with a turret springing through the roof from the chancel piers. The edifice is to be built of stone from the quarries of Sprotbrough. On Monday in last week the laying of the foundation stone took place.

West Hallam.—The condition of the church here having for some years been such as to call for extensive repairs, it has been resolved to restore it, as far as practicable. Mr. Place, architect, has been instructed to prepare plans, &c. New roofs will be required for both nave and chancel, and the whole of the interior will be reseated, by which means upwards of eighty additional free sittings will be secured. Upwards of 400*l.* have been promised in the parish, the whole population of which is only 623. A further sum of upwards of 200*l.* will be required.

Warkworth Castle.—The ancient Castle of Warkworth is, to some extent, in course of restoration in the style of the original, and under the directions of the Duke of Northumberland. The great baronial hall will be so repaired and furnished as to be fit to hold the manorial courts in.

Tynemouth.—The pier committee, accompanied by Mr. Brooks, engineer to the commissioners, were down at Tynemouth, surveying and setting out the site of the intended north pier. The committee were lately at South Shields, surveying and setting out the site of the intended south pier. It is expected that the foundation-stone of both the north and south piers will be laid in the course of a few weeks. ——The public baths and washhouses of the borough are now far advanced towards completion. The architects are Messrs. Ashpitel and Whichcord; the engineer, Mr. Potter: Messrs. Rutter and Towns, of North Shields, are the builders. The ground area of the structure is 33 feet in width, 108 feet in length, front elevation 25 feet. The south end, which comprises the two principal entrances, an office, and apartments above for residence, is built of polished stone. The front is in a mixed style of architecture.

Carlisle.—The local *Journal* states, in reference to the new cemetery for this city, that the ground, forty acres in extent, has been ordered to be fenced round,—the south and east sides with a wall 7 feet high, the north and west sides with a wall and palisading. Mr. Charles Armstrong's tender for the walling, and Messrs. Clarke's for the iron palisading were accepted, and ordered to be proceeded with immediately. The wall will be a mile in extent. Messrs. Hay's plan for the chapel and grounds was laid before the joint burial board, and a deputation appointed to submit it to the bishop for approval. The line of fence, as set out by Mr. Asquith, for straightening the boundaries, was approved of, as were also Messrs. Hays' other plans for the lodge-gate, the walks, terrace, shrubberies, drainage, &c.; and the sum of 12,000*l.* was ordered to be borrowed for the purpose of carrying the scheme into effect.

Newton-Stewart.—The gas-works here were exposed to let, by public roup, on the 28th ult. and, after considerable competition, were knocked down to Mr. Robert Young, ironmonger, at an annual rent of 92*l.* for a lease of five years from Whitsunday first—the price of gas to the consumer not to exceed 10s. per 1,000 cubic feet.

RESULTS OF A TRIAL OF PRINCE ALBERT'S PROPOSAL FOR THE CLARIFICATION OF SEWAGE WATER AND PREPARATION OF SEWAGE MANURE.

THE proposal made by the Prince Consort to the Agricultural Society of England, that sewage water might be advantageously and rapidly filtered by ascension through certain media appropriate either to the formation of required composts for solid manure, or by partial defecation only, to the preparation also of purely liquid sewage, fit for watering market-gardens with, as through pipe-hose and perforated nozzles, will be remembered by many of our readers. We are not aware that the Agricultural Society ever tested the practicability of this proposal, and, indeed, it is stated in the *Yorkshire Gazette* that they never did. It appears, however, that individual enterprize has proved his Royal Highness's proposed appropriation of the upward filtering tank of water companies to the preparation of sewage to be a highly practicable and valuable suggestion. This has been done, we understand, in many instances, but we are enabled to state the details of one case in particular, and the first, it is said, in which the new sewage-tank has been brought into use.

At Aylesbury, in Buckinghamshire, the sewage from a large section of the town discharged itself into a brook on the Hartwell-road, so near to a private residence, that the tenant threatened to indict the local Board of Health, unless measures were taken to remove the nuisance. Lady Frankland Russell, of Thirkleby Park, who frequently passed the town on her way to her seat at Chequers, having, in common with others, suffered from the poisonous effluvia, called the attention of the local board to the effect that peat charcoal had in removing the offensive odour from sewage, and, moreover, liberally subscribed towards the construction of the tank and filter. It was completed in August, 1852, and the result cannot be better shown than by quoting a letter written by the chairman of the local Board of Health to the engineer, Mr. T. A. Yarrow, of London, engaged

by her ladyship to carry out her views. The chairman observes:—

"On the 4th of August, 1852, when the peat charcoal was put into the tank, and the sewage immediately turned into it, after passing through, the liquid that ran off was without colour or flavour, perfectly inodorous and drinkable; and several who were interested in the experiment did drink it: I, myself, did: the taste was very like soft spring water. I requested a friend to analyse some of it, and he stated the result to be, that he could not detect any ammonia in it: thus the absence of ammonia would show that the fertilizing properties of the sewage had been absorbed by the charcoal. On the 23rd of September, the water which ran from the tank had the smell and colour of sewage, by which we knew the filter had done its work, in taking up as much as it would of the offensive part, which, of course, is the fertilizing part of the sewage, and the tank was accordingly emptied.

"The quantity of charcoal put in was 1 ton 9¼ cwt. and the quantity taken out was 3 tons 5¼ cwt.—thus absorbing, in five weeks, considerably more than its own weight. The consistence of the manure, when the tank was emptied, was that of very coarse sand or grit, which rendered it capable of being drilled in with seed: it was also quite inodorous.

"The benefit, in a sanitary point of view, is, that whereas the sewage was a nuisance running into a brook and polluting water which at a short distance below was taken to be used for culinary purposes, and for cattle to drink, the smell is gone from the sewage, and the water runs clear and flavourless into the brook."

The filter alluded to in the chairman's letter was constructed on the principle of that recommended by the Prince, with alterations to meet the local requirements. It purified (we are told) a section of the town containing, at a very moderate calculation, 2,000 inhabitants, and the sewage passing through the filter was of a peculiarly fetid description, owing to the deficient water supply. The tank was constructed of brick and timber; was set to work within fourteen days from the time it was commenced; and the entire cost was under 50*l.*

NOTES AND INQUIRIES.

ARCHITECTURAL AND ARTISTICAL.

1. *Jervais the Architect.*—Malone, in his account of the life of Sir J. Reynolds, gives a letter from that artist respecting the west window of the chapel of New College, at Oxford, in which Mr. Jervais is mentioned as the architect employed by the college. What is known of Jervais (I am afraid no good), and what were his principal works?

2. *Gas.*—One of the great evils attending the use of gas indoors is the smoke it causes, and the consequent disfigurement of the ceiling and walls,—what are the best practical means of obviating this very great evil—an evil which the gas companies are particularly interested in remedying, for it operates extensively in excluding gas from good houses. They would do well were they collectively to offer a liberal premium for a perfectly effectual and not unsightly remedy; either by a complete combustion of the sooty substance, or by collecting and carrying it off, or by some other expedient. I am aware that Faraday's plan answers, but it is open to several objections, besides its expensiveness. S.

WORKING MEN'S FUNERALS.

YOUR correspondent, "W. H. B." ought to have gone a step further, and inquired why there should be any walking funerals at all. The manner in which four weakly leg-bespattered men, half stifled by a pall, shuffle, stagger, and sweat under the load they bear, is painful to witness; and when it is known that the thin pine boards which are bent into the shape of a coffin not only let out the effluvium, but also in many cases fluid on the bearers, the sight becomes positively disgusting. A one-horse carriage funeral, including an impervious coffin and carriage for six persons ought not to cost more than 1*l.* 2s. 6d. for a distance of four miles, and although I am not an undertaker I would for public decency's sake guarantee a profit, and a large one, to any persons who would be undertakers at such a rate of charge. No funeral ought to cost more than 5*l.* unless more than six persons attended. ANTI-MUTE.

THE CHURCHES OF LONDON.

WE proceed to complete our illustration of the churches of London; we have already given views of fifty-one of them (see pp. 43 and 198, *ante*), and now give "a prospect" of the remaining twenty-one. The whole of these, it must be remembered, are within the City walls. The churches of Westminster would form another very interesting group, and those of the rest of the metropolis, several.

No. 1, in our present view, represents St. Dunstan's in the West, Fleet-street, built by the late Mr. Shaw, between July 1831 and July 1833. The old church escaped the fire of 1666, and, with its projecting dial with two figures of savages the size of life to strike the quarters, was a curious remnant of old London.

No. 2. St. Giles's, Cripplegate, one of the most interesting buildings in London. Here rest the remains of three notable Johns—John Fox, John Speed, and John Milton. Cromwell was married here to Elizabeth Boucher. In the churchyard is a portion of old London Wall.

No. 3. St. Andrew's, by the Wardrobe. This was built by Wren, after the fire, at the cost of 7,060*l.* and has some modern monuments by Bacon and Manning.

No. 4. St. Andrew's, Holborn, which escaped the fire, but becoming ruinous, was taken down in 1686, and rebuilt from the designs of Sir Christopher Wren. The old tower remained in its original state till 1704, when it was repaired and disguised with a facing of stone. Richard Savage was christened here, and in the register of burials appears the name of "Chatterton," the luckless boy-poet of Bristol. The east window is filled with stained glass, by Price, of York, 1718.

No. 5. St. Andrew's Undershaft, speaks of May in the olden time. Here annually was raised one of the City poles, until the riot in 1517, which gained for the day on which it happened the title of "Evil May-day." The church stands in Leadenhall-street, and was built at the beginning of the sixteenth century. It well deserves a visit, when the tomb of John Stow must not be overlooked.

No. 6. St. Botolph's, Bishopsgate. The old church here stood till the beginning of the last century, and the present structure, built from the design of James Gold, was consecrated in 1728.

No. 7. St. Dunstan's in the East, with its curious spire carried on four arched ribs, built by Wren. The body of the church was built from the designs of Mr. Laing, from 1817 to 1821, at the cost, it is stated, of 36,000*l.*!

No. 8. St. Dionis, Backchurch, built by Wren at two different times after the Great Fire. Notice the syringes in the vestry for the extinction of fires at a time before Braidwood was.

No. 9. St. James's, Garlick Hithe. This church was also built by Wren, after the fire. Over the projecting dial is a carved figure of St. James. Within there is a picture of the "Ascension," by Geddes.

No. 10. St. Bartholomew's the Great, in Smithfield, a history in stone too long for us to tell now. The body of the church, founded by Rahere about 1120, is of the Norman style; and with the monuments and vestiges of the priory buildings, will well repay a visit. The oriel in the church was probably added by Bolton, who was prior from 1506 to 1532, and probably built Canonbury House at Islington, one of the possessions of the Priory.

No. 11. St. Mary's le Bow, the finest of Wren's spires. In connection with this church, too, we have a long story. A Roman temple probably stood here originally: part of the Norman building which succeeded forms the crypt of the present structure. In the twelfth century it was the scene of a serious tumult, headed by Longbeard, and in 1284 one Ducket, a goldsmith, was assassinated there. The balcony in front of the tower was for the viewal of City shows. Near the old church there was a shed, built by Edward III. that he and his Queen might behold the jousts. The doorway below the balcony deserves examination.

No. 12. St. Mary's, Woolnoth, the work of Nicholas Hawksmoor. The old church was injured by the fire, repaired under the direction of Wren, and about 1716 taken down. Hawksmoor has shown much originality in his design. Here lies the Rev. John Newton, "once an infidel and a libertine."

No. 13. Allhallows the Great, in Thames-street. This ancient church was burnt in 1666, and the present structure was built under the direction of Wren in 1683. It is remarkable for a carved oak chancel-screen.

No. 14. St. Antholin's, which stands at the east end of Watling-street. It was rebuilt in 1682 by Wren, and is noticeable for its spire and the oval dome which covers the body of the church.

No. 15 indicates St. Stephen's, Walbrook, the interior of which has received more praise than any other of Wren's works. It unquestionably has a great charm, although the details are of an indifferent character. An account of the church, and some particulars of curious documents in the vestry, will be found in a preceding volume.

No. 16. St. Michael's, Cornhill. The old church having been burnt in 1666, Wren rebuilt the body of it in 1672; and fifty years afterwards took down and re-erected the tower. The church is Italian in style, the tower perpendicular Gothic. The latter has a bold, striking outline, but the details will not bear examination.

No. 17. St. Olave's, Hart-street, of which we gave some particulars in a recent number (p. 226, *ante*).

No. 18. St. Stephen's, Coleman-street, of which there is the usual story—it was destroyed by the fire and rebuilt under Wren, in 1676. There is a painting in the vestry-room. Amongst the monuments in the old church was one to Master Anthony Munday,—

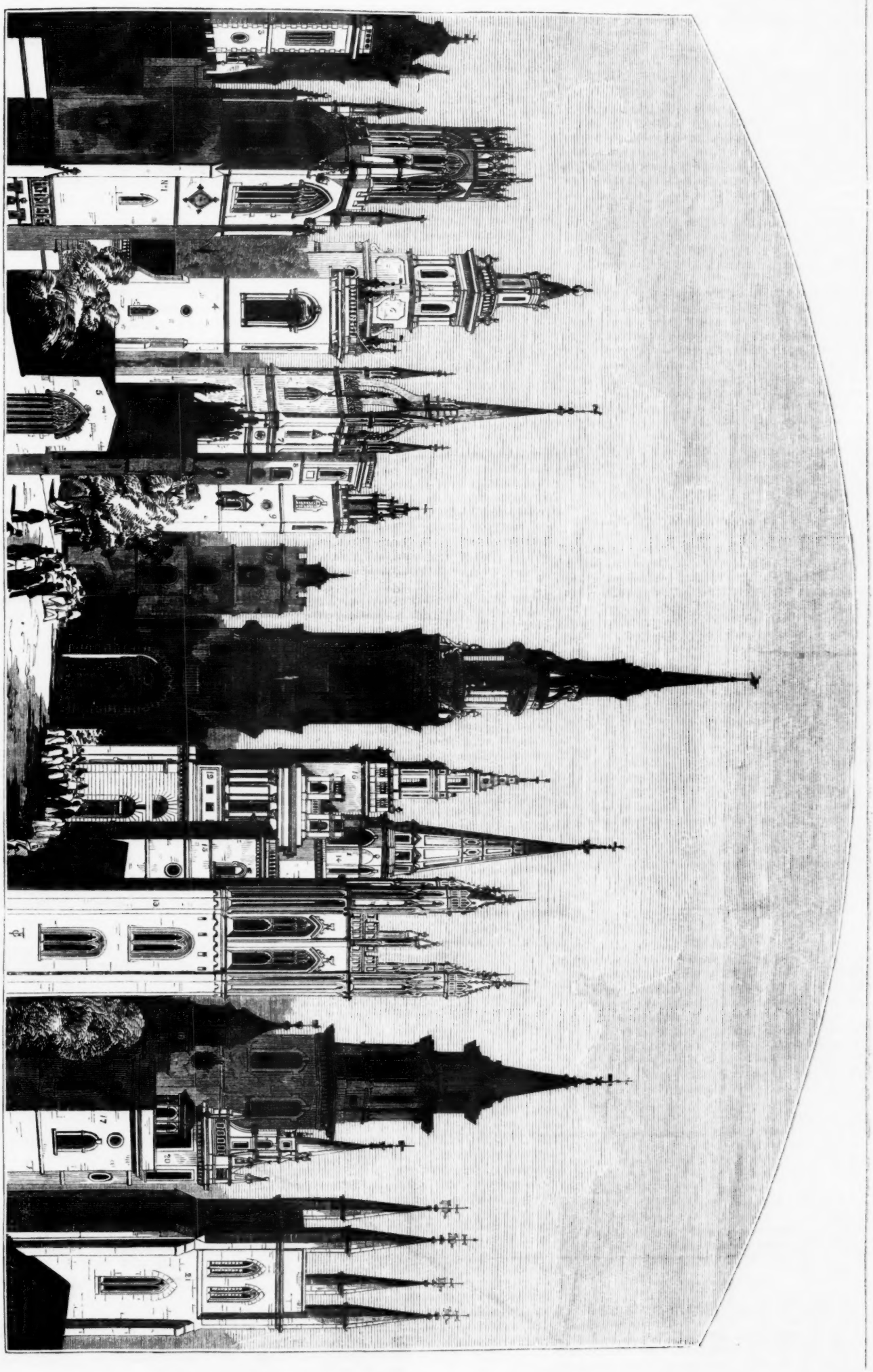
> "That survaid
> Abstruse antiquities, and ove them laid
> Such vive and beauteous colours with his pen,
> That (spite of Time) those old are new agen."

No. 19. St. Vedast's, Foster-lane, which was rebuilt after the fire under the direction of Wren. The spire is graceful and clever.

No. 20. St. Augustine's, Watling-street, built in 1683 by Wren. The steeple was not finished until 1695.

No. 21. St. Sepulchre's, Skinner-street, which retains its ancient tower and beautiful Gothic porch. The body of the church was restored by Wren after the fire: about 1836 a new roof and ceiling were formed.

If we add to these St. Bartholomew, of the Exchange, a building by Wren, which was removed from its original position three or four years ago, and re-erected in Moor-lane, Fore-street, under the direction of Professor Cockerell, we shall then have before us the whole of the churches which stand within the City boundaries.



A GROUP OF LONDON CHURCHES.

GASWORKS.

WHY should we not be supplied with gas and coke from the neighbourhood of the pits themselves, instead of carrying on the chemical process in large towns? The only objection that rises in my mind is whether the pressure would be too great for the pipes, when sent to a long distance. But could not this be obviated by stations built in secluded and at present waste places on the road, where the required new pressure might be applied? With regard to the carriage of coke, it is so much lighter than coal that the advantage is obvious.

W. H. B.

*** The desirableness of this arrangement was urged by us long ago; and we are glad to hear that a plan for effecting it is about to be made public by Mr. James Simpson, the engineer.

RESTORING WALLS TO UPRIGHT.

HOWDEN CHURCH.

WORKS in connection with re-roofing the nave of this fine church are going on. Last week the somewhat difficult and delicate operation of straightening the north wall, which in times long past had swerved about a foot from its parallel, and several inches out of its perpendicular, was successfully accomplished without accident. A correspondent sends us the following particulars of the method by which this has been done:—Ten strong beams, 12 inches square, of timber, were placed at intervals across the nave, above the arches, and through the side walls, secured to a horizontal beam, pressing against the outside of the clerestory south wall. The like arrangements were made on the north side; with this difference, that to the ends of the beams were attached three iron bolts, with strong nuts, so that, by applying the power at this point (the south wall being shored or propped with diagonal braces, well trussed, and stretching from the base of the north piers to the clerestory wall on the south side), the whole arcade, pillars, arches, and clerestory, would be, it was expected, drawn back to their original position; and, in order to facilitate the simultaneous movement of the immense mass, the joints at the base of the pillars were sawn half way through, leaving about one-eighth of an inch of space for the reinstatement of the piers in their perpendicular position. We should state that the old roof had been previously removed, so as to lighten the walls as much as possible. The following figures will show the magnitude of the operation. The wall is 112 feet long, 46 feet high from the church floor to the eaves of the roof, the average thickness being 3 feet 6 inches, and the weight, allowing for the springs of the arches, &c. about 1,000 tons. All the preparations proposed by Messrs. Weightman, Hadfield, and Goldie, the architects, having been completed under the direction of Mr. Robert Sugden, of Howden, the contractor, on Monday last, the screws, ten in number (being easily worked by two men at each screw) were gradually tightened, and in a few hours the work was successfully accomplished.

PRICE BOOKS.

THE attempt made by "Z." to improve the present "Price Books," and to amend the system of measuring and valuing artificers' works, deserves, in my opinion, the support of the profession.

I think both his proposed standard quantities much superior to the rod; indeed, I consider it is desirable to do away with the rod *entirely*, as a quantity of artificers' work. I can see no objection to the adoption of the yard cube as a *general* standard quantity for brickwork, agreeably to his suggestion.

Upon the question of joiners' work, I am, in some degree, at issue with him. By the Petersburg standard he means, I suppose, 120 1½ inch *planks;* now in London the usual standard is 120 3-inch 12 feet *deals;* which is, I imagine, by far the better of the two. As the price of each deal is regulated by the price of deals per hundred, *all* the calculations "Z." objects to are not unnecessary; nor can the percentage of profit be dispensed with, for there is no "royal road" to the valuation of artificers' work. The tables for valuing deal in Thorn's "Builders' Guide" leave little to be desired.

In Weale's "Student's Guide," decimal tables of constants are given, which, as far as they extend, will meet all your correspondent's wishes, because they are adapted for all fluctuations in the price of labour, and the master's profit can be included or excluded at pleasure.

I perfectly agree with "Z." as to the desirability of introducing a uniform system of measuring, and the profession could do much towards effecting this.

For inconsistency I apprehend the system of valuing painters' work stands almost pre-eminent. The running articles are, in most "Price Books," valued extravagantly high in comparison with the price of yard-work; but for "flatting" the prices given are *outrageous*. This kind of work costs about the same as common oil, perhaps rather less; and yet in three "Price Books" before me the price for flatting is, in round numbers, *double* the price of common oil.

T. J. P.

PRESERVATION OF STONE.

IN your report of a meeting of the Royal Institute of Architects, on the 28th November, when the preservation of stone was a subject of discussion, one of the speakers observed that "they should ascertain if possible the causes of decay in stone," and this induces me to lay before you my view of this question.

I have noticed in and about the metropolis several buildings that have been erected only a short time already exhibiting symptoms of decay in the stone,—the Houses of Parliament, Lincoln's-inn Hall, the new church in Old-street-road, the Congregational Chapel, Kingsland, only completed last year; the Institution of Civil Engineers, &c.; while stone buildings in the country that have been erected a longer time than the above-mentioned show no signs of decay.

After many observations and tests, I have come to the conclusion that alkaline efflorescence is the primary cause of decay, and that in London and large towns where many kinds of manufactures are carried on, the process of efflorescence is more rapid than in the country: this difference is caused I think by the stone absorbing the impure gaseous particles that are thrown into the atmosphere through the chimneys of the manufactures, &c. The process of efflorescence or crystallization of salt may be traced to be the cause of decay in the stone of which the Houses of Parliament are built: this beautiful magnesian limestone from its nature and appearance was (in the absence of the test which it is now undergoing) justly selected for so important a building. The enamel surface of this stone is almost impervious to oil, for on my applying a slight dressing to its natural enamel surface more than a week passed before the oil was absorbed, while upon a portion of the same block where the surface was disintegrated, a similar dressing was absorbed in half an hour. From this test I deduced that the first cause of decay proceeds from the stone, but that decay is greatly accelerated by the absorption of impure gases.

For some time I thought the wearing away of the almost metallic compactness of this stone was caused by the action of expansion and contraction, but after much consideration I now think it proceeds from the cause that I have stated, and I have no doubt that I could prove practically that such is the case.

J. B. DAVIES.

THE TRADESCANT'S MONUMENT IN LAMBETH CHURCH-YARD.

"Hoc ego versiculos feci, Tulit alter honores."

As everybody who is acquainted with Dr. James Forbes Young, will not be surprised at the quiet, cool, and unostentatious manner in which (in No. 586, p. 222) he has replied to the statement of your correspondent "T." at page 209; and as, moreover, I have taken much interest in the restoration of the monument, I think it but justice to inform you and your numerous readers, that if the idea of its restoration did not wholly originate with him (which I believe it did), at all events, and to my certain knowledge, he has carried it out with the most anxious solicitude, at no small expense of money, time, and trouble to himself.

As to the execution of the work, it may be sufficient to mention the name of Mr. George P. White, of Vauxhall-bridge-road, an inspection of the monument will speak for itself; and although it may not be necessary on this present occasion, to inquire "who piled the bricks, or brought the stones," yet I do consider the friends of the restoration are greatly indebted to Mr. William Freeman, for his donation of a sufficiency of stone, fron the Darley Dale Quarries, near Derby, not so much for so kind and liberal a donation as for the reasonable expectation of its permanent durability and beauty, unlike many of the ephemeral productions of the times, here to-day and gone to-morrow.

G. G.

Southwark.

ARCHITECTURAL COMPETITIONS COMMITTEES AND PROFESSIONAL MEN.

WHAT is said by your correspondent "W. Y." does not at all invalidate my complaint of the system of competition as at present conducted. He takes, however, a somewhat different view of the matter from myself, since he opines that architects themselves are quite as much, if even not more, to blame than committees. Yet, if reform is to come at all, it must begin somewhere, and certain it is that the mode in which competitions are generally managed from first to last by the parties who institute them is rife with errors and abuses of so very tangible a kind, that both they and the remedies for them may be clearly enough pointed out.

With regard to malpractices on the part, I am sorry to say, of those who engage in competitions, they arise in a great measure out of the perniciousness of the system as now established. Trusting to the incapacity of those who ask for designs, and who, by the miserable sums which they offer as premiums, show that they have no idea of the mental study as well as manual labour required for what deserves the name of a *design*, many make no scruple of sending in deceptively showy drawings and fallacious estimates. And although "champagne suppers" to committees are an equally gratuitous and uncalled for dash of caricature, or even burlesque, on the part of "W. Y." there no doubt is, whenever the opportunity for it is afforded, a good deal of underhand tampering with influential parties.

According to your correspondent, the majority of the profession have invariably thrown "*uncommonly* cold water" upon any movement towards effecting a reform in competition. Certain it is that the leaders in the profession—those whose names would help the cause of such reform, stand aloof; and though they do so, perhaps, merely because it is no matter of personal interest to themselves, their own position and practice being already sufficiently secure, it looks very much as if they were utterly indifferent to all other interests but their own, and to all grievances which do not affect themselves.

Apropos to competitions, I have heard that a paper on the subject, which excited more than ordinary attention, was read at a late meeting of the Liverpool Architectural Society. I have not, however, seen any report of it, either in the *Builder* or elsewhere. Therefore, whether it contained anything really to the purpose is best known to those who heard it.

AN ARCHITECT.

P.S.—In to-day's *Builder* I see an advertisement for a design for two chapels, offering three premiums of 5*l.* 3*l.* and 2*l.*: *two pounds* as a premium for designing two chapels! What next? Why, the only next thing that now ought to be done is to bring the people who offer such insults under the name of premiums, to their senses.

GEORGE STEPHENSON'S STATUE AT EUSTON STATION.

GAZING the other day at the marble statue of the late George Stephenson, recently erected in the great hall of the Euston Station, I was forcibly struck with the meagre and disproportionate appearance of the pedestal upon which it is placed. My imagination compared it to the idea of a giant perched on one end of a waste log of squared timber, or Atlas elevated on a soap-chest. The part of the hall floor under it is uneven, and there is a gaping joint of half an inch unpointed up betwixt the bottom bed of the pedestal and the flagging: so that what with the scanty dimensions of the width of the pedestal, its disproportionate height to its width, and the colossal height of the statue it has to support, it gives it a topheavy appearance, so much so, that one might fancy a strong fellow placing his shoulder against it might topple the whole fabric head and heels over.

Surely it would not have been bad taste to have placed this fine piece of sculpture on a massive block of marble or granite, forming a pedestal to it sufficiently large in its proportions to harmonize not only with the figure itself, but with the hall in which it stands.

W. L.

DEPTFORD AND ROTHERHITHE DOCKS.—The Parliamentary committee on the Wellington Dock Bill have decided that, considering the present state and prospects of the country and trade, it is inexpedient just now to sanction any new works of this description. The expenses both of promoters and opposition are said to be enormous.

WATER METERS.

FIG. 1.—ELEVATION.

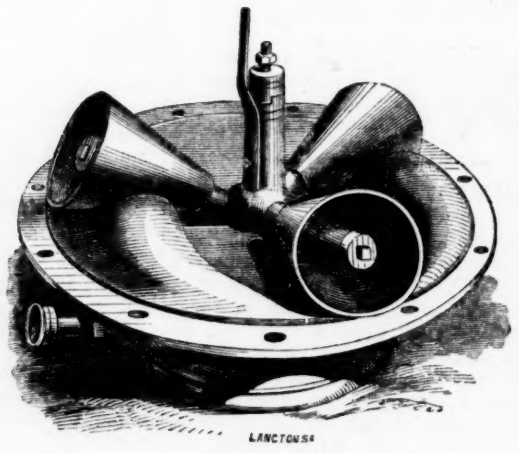


FIG. 2.—BASE OF METER, SHOWING THE ROLLERS AND BAGS.

WATER METERS.

INSTITUTION OF CIVIL ENGINEERS.

ON May 2, Mr. James Simpson, President, in the chair, the paper read was "On Water-Meters," by Mr. David Chadwick (Salford), which commenced by showing the long-experienced want of a good system of ascertaining the quantity of water delivered by water companies to private houses, public establishments, or manufactories, direct from the pipes, without the intervention of cisterns, and under the varying pressures of high and low service, or under the circumstances of intermittent or constant supply.

After alluding to the statement in the Reports of the Juries for the Exhibition of 1851 (Class V.), "that no instrument had hitherto been so far perfected as to satisfy the conditions of a good meter;" the paper gave a list of the patented water meters from 1824 to 1853, and then proceeded to explain succinctly the several systems hitherto employed, under the several classifications of,—

1st. The diaphragm principle.

2nd. The water-wheel, the turbine, the spiral fan, the drum, and their various modifications.

3rd. The piston and cylinder.

In practice, it was said, they were all found to permit small quantities of water to pass continuously through the meter, without registration, in consequence of a certain amount of force being required, to overcome the resistance offered by those parts of the meter in connection with the counting apparatus, before motion could be given to it.

Mr. Siemens's inventions were well spoken of for their ingenuity, but the defect above mentioned equally applied to them.

Captain Ericsson's rotary fluid meter was shown to bear a close resemblance to that of Mr. Taylor, and to be liable to the same objections.

The reciprocating fluid meter, also by Captain Ericsson, was shown to have been used, to some extent, in the United States, and to be more effective in its action.

Messrs. Donkin and Co.'s meter, on the principle of the disc engine, possessed a certain degree of merit, but it had not hitherto been rendered practically efficient.

The instrument introduced by Messrs. Hanson and Chadwick, of Salford (Figs. 1 and 2), the description of which was the point of the paper, consisted, the writer said, of a vessel of metal, into which the fluid entered, by a pipe at the bottom, through a wire gauze, to prevent the admission of silt or other extraneous matter; it then passed into two semicircular bags of vulcanised caoutchouc, firmly fixed on a level bed; one end of each bag opening into the meter; upon these bags rested three conical metal rollers, attached to a centre shaft, which was connected with ordinary registering wheels and dials. The water, on passing into the bags, propelled the rollers round continuously, each revolution registering exactly the contents of the bags. The rollers worked in the water, under the same pressure as in the pipes, which was in fact continued throughout, and at its exit from the meter the water did not exhibit any appreciable loss of pressure.

It was stated, that the vulcanized caoutchouc would not, in a very long period, exhibit any signs of deterioration from working under water, and that there was very little wear and tear of the bags, as the rollers passed over them, without any sensible abrasion.

Notices of Books.

The Dictionary of Architecture, of the Architectural Publication Society. London: 14 A, Great Marlborough-street.

THE second part of the "Dictionary of Architecture" runs from "Albumen" to "Ardglass," and contains interesting articles on Alessio, called Perugino, D. A. Alexander, Altar, Ambo, Antwerp, Arch, Architect, &c. We extract a paragraph or two from the last named:—

"ARCHITECT (It. *architetto*; Sp. *arquitecto*; Fr. *architecte*; Ger. *architekt*). The derivation of this term from the Greek words *ἀρχὸς a chief*, and *τέκτων a workman*, leads to the inference that at the time of the invention of the compound word, the design and construction of an edifice devolved upon one individual, who was considered as the master-builder. It appears extraordinary that mention is not made by the classic authors of any architects in ancient Italy previous to B.C. 200 (Cosstius), although such artists must have existed prior to the introduction of Etruscan art into Rome by the builders of the Cloaca Maxima; but the information, especially as to rewards and punishments, to be derived from the monuments and traditions of ancient art, shows that the modern designer, contractor, clerk of the works, and most skilful artizan, were represented by one and the same individual. Both in Greece and Italy, an architect was an artist-professor of philosophical and practical mathematics and mechanics; and from the earliest times the functions of civil and military engineer, as now understood, were material portions of his duty: such was the case with the Italian artists of the fifteenth and following centuries, who superadded excellence in sculpture and painting; and who certainly made their fortifications, whether Italian or Gothic, wonderfully picturesque. It is scarcely necessary to observe that modern military architecture is designed by the engineer.

In the decline of classic Roman art, architects are sometimes mentioned as designing works of which they were not to superintend the execution; but such cases seem to have been isolated instances, from the testimonies of later authors, in whose time, as previously, the architect or master-builder was checked by a resident board, or by a comptroller of the expense, who was sometimes a person of high rank in the household or in the army (Dinocrates) of the prince; sometimes a senator (C. Plinius *secundus*), or an officer of the municipality or province in which the work was to be executed."

We have so recently urged our readers to give their assistance to this undertaking by joining the society, that we need now only remind them of it. The larger the number of members the more rapidly the work would be carried on to completion. The Annual General Meeting of the subscribers will be held on the 18th inst. to receive the report of the committee.

VARIORUM.

IN reference to the article on capital and labour in our columns of last week, and to the subject of wages in particular, and the question of mutual partnership interest, to a smaller or greater extent, between masters and men, we may here point attention to a "Lecture on Wages," delivered at the new vestry-hall of Lambeth, in February last, by Mr. W. A. Wilkinson, M.P. and recently published, in form of a penny pamphlet, by Hill, of Westminster-road. It is one of a series delivered to the working classes of Lambeth at the instance of Mr. F. Doulton, of Lambeth, to whom the author of the present lecture has inscribed it, and will be found well worthy of perusal, although we do not mean, by saying so, to commit ourselves to all it contains.——The "First Quarterly Report to the Dudley Local Board of Health on the Sanitary State of the Parish," by Mr. J. H. Houghton, M.R.C.S.E. the officer of health, and printed by Allen, of

Dudley, shows that "much still remains to be done—much that may be done before the completion of the permanent works,—much that *must* be done and done soon," to prevent fear of an epidemic outbreak of cholera this summer in Dudley. Mr. Houghton very properly urges that this ought to be done before the end of May, as after that time it is *not* advisable to disturb the soil of towns to any considerable extent without some urgent necessity. Scarlet fever has been unusually virulent at Dudley of late, many patients having actually died of it in less than forty-eight hours after attack! a fatality fast approaching that of cholera itself. This is an ominous and startling fact.——A very well got up as well as cheap "Descriptive Atlas, illustrative of the Seats of War," has been issued by Messrs. Orr and Co. of Paternoster-row. It contains very clear and good coloured maps of Europe, Russia in Europe, Turkey in Europe, Turkey in Asia, and Russia in Asia, besides a lithographed map of the Danube from Kalafat to the Black Sea, the whole exhibiting, together with a full measure of accompanying letter-press, the vast increase of the Russian territories from the accession of Peter the Great to the present time, and all purchasable for half-a-crown.——"Notes on the present Condition of Railway Legislation," by Mr. Thomas Coates (Bigg, Parliament-street), comprises a dissection of Mr. Cardwell's proposed bill and other cognate measures from the "railway interest" point of view. The writer acknowledges that when he reflects on the duties fulfilled by the boards of directors of our great railways, he "shrinks with alarm from the prospect of handing over these noble enterprises to the accidents of some office at Whitehall." As for the public, they may be said to "stand between the Devil and the deep sea." We should not like to see them handed exclusively over either to offices at Whitehall or to railway offices.——A pamphlet "On an Improved Water Meter," by Mr. C. W. Siemens, a member of the Institute of Mechanical Engineers, has been printed by permission of the council of that institute, at Birmingham, by Billing, of Newhall-street, the subject having formed part of the minutes of proceedings of a meeting of the institute. The essential principle of Mr. Siemens's meter appears to be that of the measurement—not of the absolute quantity of water, but—of the forces of its movement through a given or known area of meter or passage pipe, and the velocity is measured by means of a sort of screw propeller only actuated by the stream and actuating the machine for indexing the result. The mechanism is protected from corrosion of pivots, &c. by enclosed oil boxes. A description of another water-meter will be found elsewhere in our present number. —Mr. Fairburn, of Manchester, F.R.S. has had his valuable communication to the British Association in 1853 on the "Strength of Locomotive boilers, and the causes which led to Explosion," printed by Taylor and Francis, of Red Lion-court, Fleet-street. The tract is illustrated by engravings.

Miscellanea.

Northampton Architectural Society.—The spring meeting will be held at Leicester on the 17th and 18th of May, in conjunction with the Lincoln Diocesan Architectural Society; and a local committee has been organised to make arrangements. Earl Howe, Sir Frederick Fowke, the Archdeacon of Leicester, Mr. Heyrick, and others, have expressed their intention of assisting at the meeting, and Sir Charles Anderson, Mr. Bloxam, Rev. J. P. Lowe, and others will read papers or be present. An excursion, which will include Melton and Gadsby churches, is arranged for Thursday, the 18th.

Society of Mechanical Engineers, Birmingham.—A meeting of the Society of Mechanical Engineers, was held last week, at the Institution, in Newhall-street; Mr. A Slate, of Dudley, in the chair. The first paper read was "On Bird's Railway Train Signal," by Mr. E. J. Payne. The second was "On England's Safety Apparatus for Working Mine Shafts," by the Chairman. The third, "On Improved Moulds for Casting Metal," by Mr. Jobson, of Dudley. The fourth, "On an Improved Piston for Steam Engines," by Mr. Ramsbottom, of Manchester; and the fifth, "On an Improved Water Filter," by the Chairman.

The National Gallery at Edinburgh.—This edifice is now externally completed, the builder, Mr. Lind, having fulfilled his contract so far as the outward structure is concerned. The foundation stone of the gallery was laid on the 30th August, 1850, but owing to the roadway to the west of the Mound having to be formed, and to the deep and substantial arched foundations required for the building on account of the loose nature of the soil, it was not till June, 1852, that the basement line of the building was laid. The *North Britain Daily Mail* says,—"Its main design is known to comprehend two splendid ranges of galleries, forming suites of rooms for exhibition, perhaps unequalled even in the metropolis. The building is bisected longitudinally, the western suite of rooms being destined for the National Gallery, and the eastern for the Royal Scottish Academy. Each suite consists of five octagonal saloons, the central hall being 43 feet in diameter, the rooms on either side being 36 feet, and the extreme apartments, forming oblong octagons, 36 feet by 26. There are also two octagonal chambers, 22 feet in diameter, formed within the sides of the great central halls, and which may communicate with either range of galleries. The light is entirely admitted from above—the octagonal windows in the roof being proportionate to the dimensions of each saloon. The large radiating frames of iron are being put up. The fitting up of the galleries of the Royal Scottish Academy is being pushed forward with activity, in order, if possible, to hold the next annual exhibition, which commences in February, 1855, within the new building."

Protection of House-light and Air.—In a recent case in the Vice-Chancellor's Court, in which the Plumbers' Company, and Beale, their lessee, were the plaintiffs, and Corbet, defendant, the Vice-Chancellor granted an injunction craved to restrain defendant from erecting any building whereby the free admission of light and air to plaintiff's house, as the same existed previously to 1st December last, would be hindered or obstructed, to the damage and injury of plaintiff, as expressed by Vice-Chancellor Sir James Wigram in the injunction in "Dawson *v.* Paven" (5 Hare, 415). There seemed to be no conflict in the affidavit as to the probability of damage to some of the plaintiffs' windows. The defendants only urged their right to go on with the building till completed, when, if a nuisance were found to arise, it might be abated by order of the court.

The Birmingham Architectural Association.—The members of the Birmingham Architectural Society celebrated their third anniversary on the 6th inst. by visiting Lichfield, where they inspected the cathedral, Stowe Church, and other places, interesting from their antiquity or special architectural features. The Marquis of Anglesey's funeral materially interfered with the objects of the visit. In the evening the society entertained its late officers, Messrs. D. R. Hill, S. Hemming, and J. R. Botham, at dinner, Mr. Hornblower presiding.—The report of the council, read at the annual meeting, was of a cheering character. The society is steadily increasing in numbers, and, notwithstanding an extraordinary outlay has been incurred during the past year in furnishing the room and in purchasing books, the accounts exhibited a balance in favour of the society.

The Lock-picker foiled.—Mr. Hobbs's glory is departed. He can no longer claim the prestige of undeviating success in his calling. Having been challenged by Mr. Edwin Cotterill, of Birmingham, to pick one of his "patent climax detector locks," he is reported to have visited Manchester to make the attempt. The experiment was made on a lock supplied to Mr. Benjamin Fothergill some months ago, and affixed to an iron chest at his office, and Mr. Cotterill undertook to pay fifty guineas to Mr. Hobbs if successful within twenty-four hours. Mr. Hobbs, it is said, after examining the outside of the lock, and making instruments for the purpose, continued engaged at the work, with the exception of short periods for refreshment, and to get some of his instruments repaired, all day and all night. When the time had expired, he had entirely failed. He was afterwards allowed to examine the interior of the lock, and it seems frankly acknowledged that an extension of time would *not* have led to success, because he had worked in the dark as to some of its details.

Alleged Infringement of Copyright of Designs Act.—In the Vice-Chancellor's Court a motion was lately made on behalf of a manufacturing firm named Jeffrey for an injunction to restrain another named Potter from selling any paper-hangings of a certain pattern, which, the plaintiffs alleged, but slightly differed from a French one purchased and published by the plaintiffs. The defendants pleaded a previous issue or publication of the design in France. The Vice-Chancellor said he could not grant an injunction till the plaintiffs' title were first tried at law, the defendants meantime to keep an account of the sales of the disputed pattern.

Boarding-houses for Operatives.—In Mr. Wallis's report of his visit to the United States, at the time of the New York Industrial Exhibition, an account is given of the boarding-houses erected for the workpeople of the Bay State Mills, at Lawrence, Massachusetts, where fancy woollen goods are manufactured. The boarding-houses are thirty-two in number, each containing twenty rooms, and each accommodating thirty-six boarders; and the houses will compare to advantage with respectable dwelling-houses in the cities, and are much better than the average in country villages. The company to which the mills belong erected the houses, and expended 30,000 dollars upon the construction of the sewers alone. Each house has a parlour and two dining-rooms, connected by folding-doors, and sleeping apartments to accommodate two, four, or six persons, according to the size of the room. There is a separate chamber for an invalid. Each house is let at a rent of 150 dollars to a tenant, who furnishes it, and supplies provisions to the inmates; but the tariff of charges is subject to revision by the company. The number of operatives employed in the mills in 1850 was 1,867.

Bristol Archæological Society.—This society held its third meeting on Tuesday in last week, when there were a considerable number of persons present, including some ladies. Two papers were read: one by Mr. T. Garrard, entitled "The Memoirs of John Guy, a Bristol Citizen," and the other by Mr. P. Leversage, "On a Runic Inscription in the Bristol Cathedral."

The Exhibition of the Basingstoke Mechanics' Institution.—The exhibition of works of industry and art in connection with this institution, and which was opened at the Town Hall, Basingstoke, on Monday in last week, under the most favourable auspices, appears to have excited much interest amongst all classes. Beside the Wellington bust sent by His Royal Highness Prince Albert, the directors of the Winchester Museum have contributed a sort of companion bust in marble of Napoleon, by Canova, besides other objects of interest, the Society of Arts a large collection of photographs, educational and other useful apparatus, &c.; and the Governors of the Bank of England their original patent machine for weighing sovereigns. The Town Hall walls are filled with a collection of paintings which a correspondent attributes to various masters. There is also a large collection of bronzes, alabaster vases, statues, statuettes, &c. Guns and mortars have been sent from the Royal Military College, Sandhurst. There are specimens of Venetian, French, Belgian, and English glass, Etruscan vases, carved and gilt cabinets, Persian Mosaic, stained glass, and other decorations, mechanical models, Mechi's model farm, chalk fossils of the district, &c. &c. It was expected that with the advantage of easy railway transit, per the Great Western and South-Western Railway, the town would be visited during the exhibition by hundreds of strangers from different parts of the country, and it is hoped the result may be a a handsome balance to form the nucleus of a building fund for the institution.

London Metal Market.—The following prices are extracted from the *Mercantile Advertiser* of last week:—

	£.	s.	d.		£.	s.	d.
COPPER.							
Old .....per lb.	0	1	0½				
Best selected.....per ton	129	0	0				
Tile and tough cake.....	126	0	0				
South American	127	0	0	—	128	0	0
IRON.							
Bars, Welsh* ... per ton.	10	0	0	—	10	5	0
Ditto, to arrive*	9	7	6	—	10	0	0
Nail rods*	10	10	0	—	11	0	0
„ Stafford*	11	10	0	—	13	0	0
Nail rods*	11	10	0	—	13	0	0
Sheets, single	12	10	0	—	14	0	0
Pig, No. 1, in Wales.....	4	5	0	—	5	15	0
Refined metal, ditto	4	10	0	—	5	0	0
Bars, common, ditto ...	8	2	6	—	8	10	0
Ditto, railway, ditto.....	7	15	0	—	8	0	0
Ditto, Swedish, in London	14	0	0	—	14	10	0
Pig, No. 1, in Clyde.....	4	2	0	—	4	4	0
FOREIGN STEEL.							
Swedish, in kegs	17	15	0	—	19	10	0
Ditto, in faggots	18	0	0	—	18	10	0
ZINC.							
In sheets	31	10	0	—	32	0	0

Several parcels of copper that have been pressing on the market are now cleared off, and buyers appear more disposed to operate. A quiet tone prevails in manufactured bar iron; but there being a very good demand in Liverpool, the prices are well supported. Rails are much inquired after. Scotch pigs have again advanced, owing to the very heavy shipments and scarcity of warrants.

* In Liverpool, 5s. to 10s. less.

LIVERPOOL TIMBER TRADE.—Last month, according to the circular of Mr. Edward Chaloner, dated 29th April, the arrivals summed up to 7 vessels, 7,592 tons, against 4 vessels, 3,047 tons, in the previous April. The business has been by retail, as is usual at this time of the year, except in regard of a cargo of St. John pine timber, of 17 inches average selling at 2s. 0½d. per foot; birch, 15 inches, at 22d. per foot; deals, as stowage, at 11*l.* per standard; lathwood at 3*l.* per fathom; palings at 2*l.*; and laths 15s. per thousand.

THE FORMATION OF A TUNNEL under the river Ohio at Cincinnati, it appears, has been seriously entertained. The navigation of the river would be seriously impeded by a bridge. It is proposed to construct the tunnel of iron, and a plan is said to have been laid before the town-council of Cincinnati. The inventor proposes to sink it in the bed of the river, in sections, by first dredging a channel deep enough to admit of the top being sunk below or even with the bed of the river, entirely avoiding the use of cofferdams. If it is proposed to lay down a railway through the tunnel, he would put the track on the top of the arch, in place of a footway. He also proposes to make the approaches all of iron, as being cheaper and safer.

ENGLISH WORKMEN IN FRANCE.—The following notification has appeared in the *Gazette*:—"Home Office, Whitehall, May 5, 1854. Whereas many English workmen have lately proceeded to France in search of employment, and having failed in obtaining work of any description, have fallen into great poverty and distress, and have suffered much misery and privation: all such persons, intending to go over to France for the same purpose, are hereby cautioned and warned of the inconvenience to which they will be exposed, unless they shall have entered beforehand into some contract or engagement with some person in France, who is able to employ them; or unless they shall, before leaving their own country, have provided themselves with funds sufficient to preserve them from want while abroad, and to enable them to return if they cannot find the employment they have sought for."

ENLARGEMENT OF LONDON DOCKS.—Operations have commenced for effecting a considerable enlargement of the London Docks at the Shadwell end. A new entrance is to be made below the present Shadwell lock for the largest ships. Parallel with the existing Shadwell basin, a wide roadway and quay being between it will lead into a large dock, which, extending past New Gravel-lane, will communicate with the present eastern dock.

SHOP-SHUTTING BY HYDRAULIC POWER.—A hydraulic apparatus for raising or lowering shutters, says the *Scotsman*, is at present being erected on the new premises of the Standard Assurance Company, in George-street, Edinburgh. The water is supplied from a cistern placed on the top of the house—a height of about 50 feet—and is conveyed by a 1-inch pipe into a cylinder fitted with a piston, which, by the pressure of the water, raises or lowers the shutters. The machine is worked by turning a small handle.

WORCESTER SOCIETY OF ARTS.—A meeting was held at the Guildhall, Worcester, on Thursday in last week, for the purpose of establishing a Society of Arts for this city. The Mayor was called to the chair, and among those present were—Lord Lyttelton, the Hon. and Rev. Canon Cocks, and other reverend gentlemen, aldermen, &c. Letters of apology were also read from Viscount Southwell, Mr. Peel, and others. A list of rules was adopted, officers appointed, and the society fairly set agoing.

THE FALKIRK WELLINGTON STATUE.—The foundation stone of the pedestal of this statue was laid on Tuesday in last week in presence of the provost and some of the chief inhabitants of the town. The statue is by this time probably up. It appears to be one of Forrest's stone cut statues, and to be considered as his greatest effort. The pedestal has a simple inscription on it, stating that the statue has been erected by the eastern district of the county of Stirling.

DUST IN THE CITY.—It is rumoured amongst the brickmakers and others connected with them, that owing to the present war, and the scarcity of money in the City occasioned thereby, ashes and breeze will come down to a very low figure this season, but the following list does not appear to show it. The City this year is divided into six divisions instead of four as heretofore. The letting took place on Tuesday, April 25, at Guildhall, when there were nearly forty tenders offered, and the following six contractors were accepted at the undermentioned prices:—

A division—Henry Dodd and Co.	£1,475
B division—John Gore	1,000
C division—William Sinnott, Jun.	850
D division—James Bugbee	700
E division—Robert Drummond	1,360
F division—James Sinnott	1,200

A. B.

THE MONUMENT TO THE MEMORY OF THE LATE SIR FRANCIS CHANTREY, at his birth-place, Norton, Derbyshire, has been raised. It consists of an obelisk, 21 feet 10 inches in height, in one block, 3 feet square at the base, and 1 foot 6½ inches square at the top. The base is 3 feet high, and weighs upwards of nine tons. The foundation is a solid square of masonry, twenty-five tons of stone having been used in the construction. The material of the shaft and steps is grey granite, fine axed, from the Cheesewring quarries. The only inscription is the word "Chantrey," in incised square letters.

RAILWAY MATTERS. — The *Morning Chronicle* suggests to publishers the extension of cheap literature for "*third*-class" passengers,—say sixpence worth, or threepence, in place of the more aristocratic shilling volume.——West-end omnibuses may look out. A Bill is now before Parliament for a line of rail between Westminster-bridge and London-bridge, along the north side of the Thames, but how it is to be managed we are not yet aware. Omnibuses, however, are becoming so much of a nuisance in the streets, that one would be glad to be rid of them on almost any terms. Yet they are useful too: they are teaching the middle-class man the use of his limbs, and how to *save* his sixpences in place of spending them in omnibuses.——A commotion has been excited in Lambeth, by the appropriation of some of the arches of the South-Western, as a receptacle for the dead while waiting funeral trains to Woking, which the company are obliged to supply. The object of the company, we believe, has been to keep their terminus clear of this traffic. A receptacle at Battersea is spoken of.

SPRING-HILL COLLEGE COMPETITION.—A correspondent states that twenty-five sets of drawings were submitted in this competition. From these six were selected, two by the professional adviser of the committee, and four by the committee themselves. The designs of Mr. Bateman, of Birmingham, and Mr. E. Barry, of London, were the two first; and the committee's nominees were Messrs. Wehnert and Ashdown, Joseph James, Coe and Goodwin, and Raffles Brown, all of London. These gentlemen were invited to renew the contest, in accordance with a revised set of instructions, which they accordingly did, and after examination, the design of Mr. Joseph James was ultimately adopted, upon the condition that the builder's estimates should not exceed the stipulated sum. Tenders are to be invited in immediately.

THE WORKMEN engaged by Mr. Myers, in building the new church of All Saints, Notting-hill, for the Rev. Dr. Walker, were hospitably entertained by the latter gentleman, on Thursday, in the week before last.

WESTMINSTER ABBEY.—Permit me to offer a few suggestions upon the arrangement of seats in Westminster Abbey, which at present are anything but convenient or moderately comfortable to the commoners who have not a pass to the reserved seats or the disposition to bribe the verger with a shilling for the privilege, and yet are fond of worshipping God in the beautiful temple raised to His name by the piety of our ancestors, or, as some say, by the exercise of priestly functions brought to bear upon the closing scene of a former race of John Bull's illustrious ancestors. Be that as it may, what I propose to effect is entirely to prevent the necessity of the bribery and corrupt practices before named:—to prevent the worshippers being detained two mortal hours in a temperature fast verging on the freezing point, too often resulting in severe cold or rheumatism, mayhap in the case of many a delicate female, prematurely hurrying her to the grave, entailing sorrow and affliction on many a heart and many a family circle. My plan would be to continue the present choir to within about 30 yards of the west entrance, where I would move the elaborate screen and organs forming the principal entrance to the choir, continue the canopied stalls and oak seats or pews to the same distance, and close in the east end with a glazed screen; by this means ample and suitable accommodation would be provided for the attendants, and the minister would have the certainty of being heard by his auditory without the painful exertion now required.

H. B.

TENDERS

For completing the erection of sixty dwellings for families for the Metropolitan Association for Improving the Dwellings of the Industrious Classes. Mr. Lee, architect:—

Glenn	£9,884 0 0
Smith and Appleford	9,250 0 0
Higgs and Cullingford	8,785 0 0
Locke and Nesham	8,650 0 0
Myers	8,549 0 0
John Smith	8,540 0 0
Sanders and Woolcott	8,485 0 0
I'Anson	8,476 0 0
Jay	8,441 0 0
Wm. Cubitt and Co.	8,287 0 0
Grimsdell	8,130 0 0

For Brighton Workhouse. Mr. Carpenter, architect:—

Wm. Higgs	£31,345 0 0
G. Myers	30,800 0 0
Brass and Son	28,833 0 0
Roberts and Bushby	28,816 0 0
H. W. Cooper	27,905 0 0
G. Lynn	27,590 0 0
G. Terry	27,500 0 0
Cheesman	27,169 0 0
Rowland and Evans	27,114 0 0
Fabian	26,900 0 0
Clever and Stanger	25,500 0 0

For constructing the roads and drains on the Harrow Park Estate, belonging to the City of London and Counties Freehold Land Society:—

Hayes	£3,600 0 0
Clayton and Rule	3,550 0 0
Fraser and Judd	3,395 16 6
Green	3,353 0 0
Carlisle	3,217 15 4
Robinson	3,210 0 0
Lovegrove	3,154 0 0
Pound and Hudson	3,039 9 0
Gent and Billing	2,907 0 0
Murray	2,796 0 0
Murdin	2,700 0 0
Dodson and Mawer	2,613 0 0
Simpson	2,575 0 0
Martin	2,330 0 0
Wright	2,189 0 0
Bower	2,150 0 0
Phillips (accepted)	2,090 0 0

For rebuilding the King and Queen Tavern, corner of Wood-street, Hare-street, Bethnal-green. Mr. J. Houle, architect:—

Very and Turner	£2,210 0 0!
Fowler	1,780 0 0
Nash	1,646 0 0
Outhwaite	1,597 0 0
Brake	1,483 0 0
Ennor	1,474 0 0!

For rebuilding a farm-house and offices, situate at Hill Green Farm, Clavering, Essex, for Mr. E. D. Raymond, of Hertford. Mr. D. Hollingsworth, architect:—

Lawrance	£1,764 0 0
Erswell	1,747 0 0
Grainger	1,710 0 0
Glascock, Slorford (accepted)	1,698 19 0

For the first portion of the alterations at the Earl of Effingham Theatre and Tavern, Whitechapel-road, for Mr. F. Westley. Mr. W. F. Hill, architect:—

Hall and Son	£1,121 0 0
Elston	1,010 0 0
Nash	972 0 0
Estall	960 0 0

For taking down the Robin Hood public-house, Millbank-street, Westminster, and erecting three dwelling-houses thereon. Messrs. Willshire and Parris, Architects. Quantities supplied:—

Locke and Nesham	£2,390 0 0
John Wilson	2,374 0 0
Wardle and Baker	2,260 0 0
Patrick and Son	2,145 0 0
J. Harding	2,052 0 0
Wm. Higgs	2,036 0 0

For St. Stephen's Church, Westbourne-park, Paddington. Messrs. F. and H. Francis, architects:—

	Church, without Spire.	Completion of Tower and Spire.	Total.
	£.	£.	£.
J. and E. Bird	9,640	2,629	12,269
Haward and Nixon	9,477	2,500	11,977
J. Glenn	8,618	2,021	10,639
Locke and Nesham	8,700	1,920	10,620
W. Jackson	8,620	1,780	10,400
W. Higgs	8,345	1,888	10,233
J. and C. I'Anson	7,986	1,725	9,711
Myers	8,120	1,545	9,665
H. W. Cooper	7,594	1,980	9,574

Delivered some time since for Christ Church, Cravenhill, Bayswater. Same architects as last:—

	Church, with Deal Fittings.	Church, with Wainscot Fittings.	Completion of Tower and Spire.	Total, Wainscot Fittings.
	£.	£.	£.	£.
Rowland & Evans	11,747	14,080	3,615	17,695
J. and E. Bird	13,099	14,995	2,597	17,592
J. and C. I'Anson	13,550	15,025	2,310	17,335
H. W. Cooper	12,325	14,025	2,695	16,720
Higgs and Cullingford	12,245	13,550	2,440	15,990
Myers	11,996	13,490	2,145	15,635

TO CORRESPONDENTS.

"Juvenis" (pupils should obtain their masters' concurrence in all such matters. As to the "brasses," a note to the churchwarden would be the safest course), "D. D." "F. P." (private quarrels are out of our province. The charges are very grave), "J. H." "C. K." (remedies have been given in our pages), "J. P." "J. K. C." "W. R. S" "F. W." "T. L." "Lord G" "G. P." (we cannot afford space for bare assertions), "A Young Architect," "R. H." "W. M." "S. P." "J. H." "G. P." "L. J. H." "G. B." (thanks), "T. R." "T. W. O." "R. J. S." "R. K." (it was originally given in our pages, but served to mislead), "E. B. jun." "W. C." "R. E." "D. C." "J. K. C." "R. G." (shall appear), "J. B." "F. R." "R. C." "C. E. L." "A Ratepayer."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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